GOVERNMENT OF INDIA
PETROLEUM AND NATURAL GAS
LOK SABHA

UNSTARRED QUESTION NO:4456
ANSWERED ON:24.04.2008
TECHNOLOGY FOR USING HYDROGEN AS FUEL
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Will the Minister of PETROLEUM AND NATURAL GAS be pleased to state:

(a) whether India has developed the technology for using hydrogen as fuel in automobiles in place of Petrol and Diesel; and

(b) if so, the details thereof;

Answer

MINISTER of STATE for PETROLEUM & NATURAL GAS(SHRI DINSHA PATEL)

(a) & (b) The Ministry of New and Renewable Energy (MNRE) has been implementing a broad based research, development and demonstration programme on different aspects of hydrogen energy and fuel cell technologies including hydrogen production, its storage and applications in internal combustion engines and fuel cells.

(i) The programme is implemented through academic and research institutions like IITs, Universities, CSIR laboratories etc and industry.

(ii) These efforts have resulted in modification of petrol driven motor cycles and three wheelers by Banaras Hindu University (BHU), Varanasi to operate with hydrogen as fuel. 15 such hydrogen fuelled motorcycles have been developed and are being demonstrated on limited basis in the campus of BHU.

(iii)Experiments on use of blends of hydrogen and diesel have also been undertaken in internal combustion engine in the laboratory scale prototypes by IIT Delhi and Jadavpur University, Kolkata. However, automobiles that can be run on hydrogen-diesel blends are yet to be developed in the country.

(iv)A fuel cell- battery hybrid van was developed and demonstrated by SPIC Science Foundation, Tuticorin.

(v) A development-cum-demonstration project has been supported by the Ministry for introduction of blend of hydrogen and Compressed Natural Gas in selected vehicles to evaluate the performance and emissions of these vehicles. The Society of Indian Automobile Manufacturers (SIAM), Indian Oil Corporation Ltd. and five automobile manufacturers are participating in this project. The project is expected to be completed by September, 2009.

(vi)However, prototypes of automobiles developed in the country to operate with hydrogen as fuel would need further development before they can be commercialized.
BPCL is conducting research on various aspect of technology for using hydrogen as fuel in automobiles as detailed below.

(a) Hydrogen production: BPCL has initiated a dialogue with National Chemical Laboratory, Pune for undertaking a research program for production of hydrogen by novel methods.

(b) Hydrogen Storage: BPCL is working on the development of storage materials based on nanotechnology for on − board storage of hydrogen in collaboration with Indian Institute of Science (IISc), Bangalore and CSMCRI, Bhavnagar.

(c) Trials with Three Wheeler (Auto Rickshaw): A CNG three wheeler has been modified for hydrogen use to gain experience in
(i) hydrogen storage and refueling on −board canister system and
(ii) performance of vehicles.

(d) A Hydrogen Corpus Fund has been created by the MoP&NG in which OMCs are partner with OIDB. IOC, R&D Centre is also carrying out tests and developmental studies for using Hydrogen in conjunction with CNG in three and four wheeler vehicles.